

LAL and HSLipase Are Different Enzymes

- Different cell compartments
 - LAL in lysosomes
 - HSLipase in cytoplasm
- Different amino acid sequences
- Different genes
- Different post-translational modifications
- Different developmental/tissue expression
- Different functions in cell

Amino Acid Alignment (hLAL and h-HSL)

<i>hLAL</i> 39	K M F L G I V C L P W P	207	<i>h-HSL</i> 39	K M F L G I V C L P W P	207
<i>h-HSL</i> 39	D I T M I Q S V T E D		<i>hLAL</i> 39	N I A F S G Q E P	
M R			M	G E T A	
<i>hLAL</i> 39					
Q R L S G V F A G V Y R E Q A L G L E P A L G R L L G V A . L					
<i>hLAL</i> 39 T A N M S E I S Y W F P S E E Y E T E					
<i>h-HSL</i> 39 F D P A Y R S V H T R C C L A H H K S					
D PET N .					
<i>hLAL</i> 39	D C L N I P H G K N V S D K G	1167	<i>hLAL</i> 39	D C L N I P H G K N V S D K G	1167
<i>h-HSL</i> 39	R - S N R S I F F T S N L A E		<i>h-HSL</i> 39	R - S N R S I F F T S N L A E	
G Y .	R R H		G Y .	R H	
<i>hLAL</i> 39					
Q I R A L V Y Y A Q R L L V I . P G V . F G D . G L					
<i>hLAL</i> 39 S S N W V T N A N - - - - S S					
<i>h-HSL</i> 39 F L R E Y V T H K R C Q F T P R P A					
A D	L G C F Y G L G F				

187 V W M G N [REDACTED] R - - - - - N T [REDACTED] S [REDACTED] K H K T [REDACTED] S Q D - -
h-HSI 38 F L Q T I [REDACTED] I [REDACTED] E H [REDACTED] K [REDACTED] N E T G [REDACTED] A A S [REDACTED]
S G L V S F G . R [REDACTED] L S V [REDACTED] S L
247

220 -
h-HSI 38 [REDACTED] FT S G R F A I D P E I R G A E F F E R I T Q N L D V H F W K
250 -
h-HSI 38 E [REDACTED] F W N I T M E V L I S S I L A N M A S A T V R V S R L L S L

247 S Y D E M [REDACTED] K Y D [REDACTED] P [REDACTED] N F I [REDACTED] N [REDACTED]
h-HSI 38 E M P L T [REDACTED] D P T [REDACTED] T [REDACTED] S P P [REDACTED] A [REDACTED]
P P E A F A [REDACTED] L . . I [REDACTED] L . . T G P G P
247

247 -
h-HSI 38 V I V R L I S S Y D L R E G Q D S E Q [REDACTED] Y Y [REDACTED] S S [REDACTED] S . G Q R .
247

247 T I S I A F S [REDACTED] E L A K R [REDACTED] K M [REDACTED] P [REDACTED] S V A
h-HSI 38 L E [REDACTED] P R P Q [REDACTED] R S R S L [REDACTED] V H [REDACTED] F [REDACTED] Q T S
Q . P I F . . G V A

337
 338 **H&L 39** F C T S - - - - -
 339 **H-H&L 39** R S H E - - - - -
 340 **P Y L K S W A Q E I G A P I I S I D Y S A**

4387
H&L 39 L D H I K D L - - - - -
H-H&L 39 F R A E E C F - - - - -
 P L F

4387
H&L 39 - - - - -
H-H&L 39 T H
 4387
G N L C F T V A L R A A A Y G V R V P D G

4387
H&L 39 - - - - -
H-H&L 39 I M A A Y P A T M I Q P A A S P S R L L S L

4387
H&L 39 N M S R D - - - - -
H-H&L 39 L S K C S A V
 4387
T D N S D Q X H S

4387
H&L 39 S Q A V K F Q K F Q A D W S - - - - -
H-H&L 39 V R R D T A L L R D F G S S W L N S F L E L S G R K

5507
HAI 39 - - - - - A K N Y F H Y N S Y P P
H-HSL 39 [REDACTED] S E A I L A Q P G P L G T
S Q K M S E P I A E P M R R S V Q

5507
HAI 39 Y N D M L [REDACTED] V W S G H W L A V - - - -
H-HSL 39 D S N I T [REDACTED] S L R N S T S S T
[REDACTED] D F E M S L S A
K . G .

6007
HAI 39 - - - - - Y [REDACTED] I T - - - - -
H-HSL 39 E T I S P S T P D V N L L P E D A G E E A E A K N E L
[REDACTED]

6007
HAI 39 - - Q I T N F E S I W E L D - - - - -
H-HSL 39 M D R G V A A F G F P R [REDACTED]
S P L . P E H R S S Q G A T Q M P

6007
HAI 39 - - - - - I W G D W R L Y N - - - - -
H-HSL 39 M S P L D S M I K [REDACTED]
L Y S S P I V K N P F I A P S L P P V H I

7007
HAI 39 - - - - - K I N M Y Q [REDACTED]
H-HSL 39 D S M A L R [REDACTED]
V A C A L D P M I D L R . N L G Q P V T L R V

ALAN
HAROLD

W E D L P H G F L T L A A L C R E T R Q A A E L C V E R I R

JMM JMM JMM

JMM JMM JMM

JMM JMM JMM